8(4) SOV/112-59-5-8510

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 5, p 15 (USSR)

AUTHOR: Yushkov, P. P.

TITLE: A Difference Scheme of Numerical Integration of the Heat-Conductance Equation

PERIODICAL: Dokl. AN BelSSR, 1957, Vol 1, Nr 3, pp 89-91

ABSTRACT: Bibliographic entry.

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YUSHKOV, P.P.; LOGINOV, L.I.

Numerical integration of equations for heat conduction in three-dimensional space. Inzh.-fiz.zhur. no.2:22-31 F '58. (MIRA 13:1)

1. Institut energetiki AN BSSR, Minsk.
(Heat--Conduction) (Approximate solutions)

SOV/58-59-9-20047

Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 9, p 87 (USSR)

AUTHOR: Yushkov, P.P

TITLE: An Approximate Solution to Problems of Non-Steady Heat Conductivity by the Method of Finite Differences

PERIODICAL: Tr. In-ta energ. AN BSSR, 1958, Nr 6, pp 3 - 158

ABSTRACT: This study contains a systematic account of the network method as applied to the solution of problems of non-steady heat conductivity. Questions of stability and convergence are examined in detail, as well as the degree of accuracy of the various methods. For a one-dimensional equation the author studies the conditions arising in the case of boundary conditions of various types. For a two-dimensional equation he examines the application of networks of various forms (triangular, polar, etc.). He also analyzes questions concerning the numerical integration of nonlinear parabolic equations of a special form. A solution for a three-dimensional problem is given by the network method. The author analyzes the graphical method of solving a one-dimensional problem. Finally, he discusses the problem

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SOV/58-59-9-20047

An Approximate Solution to Problems of Non-Steady Heat Conductivity by the Method of Finite Differences

of solving a system of equations which describe the simultaneous transfer of mass and heat (for example, the process of drying). The study contains a host of numerical examples carried out to their completion, as well as an analysis of the contemporary literature on the subject. The bibliography lists 84 titles.

B. Katsenelenbaum

Card 2/2

YUSHKOV, P.P.

Numerical integration of the heat-conductivity equation in cases of dependence of thermal coefficients on temperature (with summary in English). Inzh.-fiz. zhur. no. 9:102-108 S '58. (MIRA 11:10)

1. Institut energetiki AN BSSR, g. Minsk.
(Heat--Conduction)
(Differential equations, Partial)

BLOKHINA, A.I.; YUSHKOV, P.P.

Problem in improving the convergence of the series of Fourier's functions whose graphs represent the population of second degree parabola. Trudy LTIKHP 15:186-195 '58. (MIRA 13:4)

1. Predstavlena Kafedroy vysshey matematiki Leningradskogo tekhnologicheskogo instituta kholodil'noy promyshlennosti.
(Harmonic analysis)

SOV/170-59-6-10/20

24(8)

AUTHORS: Shimko, N.G., Yushkov, P.P.

TITLE: A Hankel Final Integral Transformation

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 6, pp 72-79 (USSR)

ABSTRACT: For final integral transformations Sneddon [Refs 2, 3] introduced kernels, which include Bessel functions, in order to study the physical state of bodies possessing cylindrical symmetry. The transformations of this kind he denoted as Hankel final integral transformations. A general method for solving certain boundary-value problems with separable variables was proposed by G.A. Grinberg [Refs 6, 7]. The authors describe three cases of Hankel final integral transformations which were considered by Sneddon and bring them to the form which could be applied for solving the problems on thermal state of a hollow cylinder. The inner surface of this cylinder is maintained at a given temperature, and the outer surface is thermally insulated. The Hankel final integral transformation is then expressed by Formula 3.13 and the corresponding conversion formula is 3.14. This integral transformation is used in the solution of the problem of heat conductivity for a

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A Hankel Final Integral Transformation

hollow cylinder (Equation 4.1) with boundary conditions (4.2 - 4.4) of the second type. The solution is given by Formula 4.9. There are 14 references, 9 of which are Soviet, and 5 English.

ASSOCIATION: Institut energetiki AN BSSR (Institute of Power Engineering of the AS Belorussian SSR), Minsk.

YUSHKOV, P.P.

Numerical integrating of simultaneous differential equations of heat transfer and the mass of a substance. Trudy Inst.energ. AN BSSR no.10:73-80 '59. (MIRA 13:6)

(Heat--Transmission) (Differential equations)

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S/170/60/003/010/014/023
B019/B054

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AUTHORS: Loginov, L. I., Yushkov, P. P.

TITLE: The Numerical Integration of the Equation System for the Heat-mass Exchange With the Aid of Implicit Formulas

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 10, pp. 93-96

TEXT: The authors study the numerical integration of the differential equation system for the heat- and mass transfer. They restrict themselves to the one-dimensional case, and assume that all transfer coefficients are constant:

$$\partial t/\partial \tau = a\partial^2 t/\partial x^2 + b\partial u/\partial \tau \qquad (b = \varepsilon\varrho/c) \qquad (6)$$

$$\partial u/\partial \tau = a\partial^2 u/\partial x^2 \qquad (-R \leq x \leq R) \qquad (7)$$

The corresponding boundary and initial conditions are given by (8) - (10). A. V. Lykov (Refs. 3, 4) had already studied this system. A numerical integration of this system by explicit formulas had been described by Yushkov (Ref. 5). For the boundary and initial conditions (9) and (10),

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The Numerical Integration of the Equation System for the Heat-mass Exchange With the Aid of Implicit Formulas

the authors introduce the analogous difference formulas (11) and (12), and derive the implicit difference formulas (13) - (14) analogous to (6) - (7). These implicit difference formulas are somewhat more complex than the explicit ones, but they permit an increase of the step. Finally, the authors give the formulas (15) for the numerical integration in the case in which a system of four equations with four unknowns is to be solved. There are 1 figure and 5 references: 4 Soviet and 1 British.

ASSOCIATION: Institut energetiki AN BSSR, g. Minsk
(Institute of Power Engineering of the AS BSSR, Minsk)

SUBMITTED: March 8, 1960

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YUSHKOV, P. P. and LOGINOV L. I.

"The Numerical Method of Integration of one System of Heat and Mass Transfer Differential Equations in the Case of Variable Physical Properties."

Report submitted for the Conference on Heat and Mass Transfer, Minsk, BSSR, June 1961.

5-9

YUSHKOV, Petr Petrovich, prof.; LYKOV, A.V., akademik, red.;
BARABANOVA, Ye., red. izd-va; ATLAS, A., tekhn. red.

[Bessel's functions and their applications to problems in the cooling of a cylinder] Funktsii Besselia i ikh prilozheniia k zadacham ob okhlazhdenii tatlindra. Pod red. A.V.Bykova. Minsk, Izd-vo Akad. nauk BSSR, 1962. 169 p. (MIRA 15:7)

1. Akademiya nauk Belorusskoy SSR (for Lykov).
(Bessel' functions) (Heat--Transmission)

YUSHKOV, P.P.

Conference of readers of the "Inzhenerno-fizicheskii zhurnal" and the international journal "Heat and Mass Transfer" at Leningrad. Inzh.-fiz. zhur. 5 no.7:134-136 Jl '62. (MIRA 15:7)
(Heat—Transmission) (Mass transfer)

YUSHKOV, P. P.

"Influence of boundary conditions and types of grid lines on the stability of differential schemes for the numerical integration of the heat-conduction equation."

report submitted for 2nd All-Union Conf on Heat & Mass Transfer, Minsk, 4-12 May 1964.

Leningrad Technological Inst of the Refrigeration Industry.

VALLANDER, S.V.; GINZBURG, I.P.; POLYAKOV, N.N.; YUSHKOV, P.P.

Konstantin Ivanovich Strakhovich, 1905- ; on his 60th birthday.
Inzh.-fiz. zhur. 8 no.3:409-410 Mr '65.
(MIRA 18:5)